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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 09/936,440
Filing Date: January 25, 2002
Appellant(s): MAHLAB, URI

Roni S. Jillions
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/27/10 appealing from the Office action mailed 10/27/09.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

45-55, 66-73, 82-83, and 86.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN

REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

US 5488501 A	Barnsley; Peter E.	01-1996
US 6160652 A	Nir; David	01-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 45-47, 53. 55, 57, 66, 72, 82-83, 86 are rejected under 35 U.S.C. 102(b) as being anticipated by Barnsley (U.S. Patent No. 5,488,501).

Regarding claim 45, Barnsley teaches in a telecommunication system, a method for routing optical data signals using a first communication path (the optical path between reference numerals 4 and 6 in Figure 1) comprising at least one optical fiber (i.e. the fiber link between elements 4 and 6 in Figure 1) extending between at least two network elements (reference numerals 4, 6 in Figure 1) of the telecommunication system for carrying optical data signals separated from their associated optical addressing signals, and a second communication path (e.g. the communication path between the output of coupler 7 and the input of optical switch 8 in Figure 1) comprising one or more optical fibers (i.e. the fiber between reference numerals 14 and 8 in Figure 1) extending between at least two network elements of the telecommunication system (reference numerals 14, 8 in Figure 1) for carrying optical addressing signals separated from their associated optical data signals, each of said at least two network elements having routing capabilities (i.e. element 4 routes the optical data signals onto the fiber between elements 4 and 6, while element 6 routes the combined optical data signals and control signal onto fiber 2), the method comprising the steps of providing a combination of said optical addressing signals to provide addressing information required for establishing an address for routing the optical data signals (column 1 lines 23-31), and providing at least one of said at least one optical fiber (i.e. the fiber link between elements 4 and 6 in Figure 1) comprised in said first communication path for carrying said optical data signals separated from their associated optical addressing signals is

different path from any of the one or more optical fibers comprised in said second communication path (i.e. the fiber between reference numerals 14 and 8 in Figure 1), and wherein said optical data signals being conveyed separately from their associated optical addressing signals along said at least one optical fiber were generated at a plurality of different network elements (i.e. the data signals generated at element 4 in Figure 1 where generated by a plurality of different elements, namely a light source and a modulator, each of which are part of the network and are thereby considered network elements; see column 2 lines 5-9), each of said plurality of different network elements having routing capabilities (i.e. the light source routes light towards the modulator and ultimately the fiber between elements 4 and 6, while the modulator within element 4 routes electrical data pulse input from an external data source to be modulated onto the light from the light source).

Regarding claim 46, Barnsley teaches in a telecommunication system, a method for routing optical data signals between at least two routers in the system, which method comprises: generating first optical addressing signals associated with the optical data signals by converting signals identifying a destination address into corresponding optical addressing signals (reference numeral 5a in Figure 1); transmitting said optical addressing signals separated from their associated optical data signals over one or more optical fibers (i.e. the fiber from element 5 and router 6) comprised in a first communication path (i.e. the communication path formed between elements 5, 6, and 7), said first communication path extending from one (reference numeral 6 in Figure 1) of the at least two routers to another router (reference numeral 7 in Figure 1) of the at least two routers, each of said at least two network elements having routing capabilities (i.e. element 6 routes the optical data signals and control signal onto the fiber 2, while element 7

routes the combined optical data signals and control signal from fiber 2 onto one of two output fibers); and concurrently or subsequently transmitting said optical data signals (reference numeral 4 in Figure 1) separated from their associated optical addressing signals to said another router via a second communication path (i.e. the communication path formed between elements 4, 6, and 7) comprising at least one optical fiber (i.e. the fiber between elements 4 and 6 in Figure 1), said second communication path extending from said one router (reference numeral 6 in Figure 1) of the at least two routers to the another router (reference numeral 7 in Figure 1), and comprising at least one optical fiber (i.e. the fiber between elements 4 and 6 in Figure 1) which is different from any of the at least one optical fibers (i.e. the fiber from element 5 and router 6) comprised in said first communication path, wherein said optical data signals being conveyed separately from their associated optical addressing signals were generated at a plurality of different network elements (i.e. the data signals generated at element 4 in Figure 1 where generated by a plurality of different elements, namely a light source and a modulator, each of which are part of the network and are thereby considered network elements; see column 2 lines 5-9), each of said plurality of different network elements having routing capabilities (i.e. the light source routes light towards the modulator and ultimately the fiber between elements 4 and 6, while the modulator within element 4 routes electrical data pulse input from an external data source to be modulated onto the light from the light source).

Regarding claim 47, Barnsley teaches generating new optical addressing signals (reference numeral 5a in Figure 1) associated with the next section of a transmission path extending from said one router (reference numeral 6 in Figure 1) of the at least two routers towards said destination address; transmitting the new optical addressing signals over one or

more optical fibers (i.e. the link comprising reference numerals 2, 5, 6, 7 in Figure 1) extending between said one router of the at least two routers and another router (reference numeral 7 in Figure 1); transmitting said optical data signals to said another router via an optical fiber (i.e. the link comprising reference numerals 2, 4, 6, 7 in Figure 1) extending between said one router of the at least two routers and said another router; wherein said optical fiber over which said optical data signals are transmitted is different form said one or more optical fibers for carrying said optical data signals separated from their associated optical addressing signals, repeating the steps of generating new optical signals (inherent in the transmission of each 16-bit packet and its associated control signal as described in column 3 lines 55 – column 4 line 7), transmitting the new optical addressing signals separated from their associated optical data signals and transmitting said optical data signals separated from their associated new optical addressing signals to said another router (i.e. the addressing signals and the data signals are separated at least before they reach router 6 in Figure 1), until said optical data signals are transmitted to said destination address via subsequent routers (reference numeral 8 in Figure 1) located along a transmission path extending towards said destination address.

Regarding claims 53 and 72, Barnsley teaches that the transmission of at least one of the optical data signals is delayed (as noted in the abstract) until the following steps are performed (column 4 lines 28-34): decoding said optical address signals (column 1 lines 25-27); deriving addressing information from the decoded optical addressing signals (column 1 lines 25-27); and if required, generating another, or using said, optical routing address for further routing of said optical data signals (column 4 lines 24-29).

Regarding claim 55, Barnsley teaches transmitting to said one of the at least two routers (reference numeral 8 in Figure 1) an indication (i.e. the control signal 5a) that said optical data signals can be forwarded towards their destination; receiving (reference numeral 16 in Figure 1) said indication at said one of the at least two routers; and transmitting, responsive to receiving said indication, said optical data signals towards said another router along said data transmission path (i.e. along to path 11a).

Regarding claim 57, Barnsley teaches that at least one part of said second communication path extends in network different than a network in which said optical data signals are transmitted to their destination (i.e. the next network connected to reference numeral 3 in Figure 1; Figures 5 and 6).

Regarding claim 66, Barnsley teaches a routing apparatus (reference numerals 4, 5, 6, 2 in Figure 1) for routing optical data signals said apparatus comprises means (reference numeral 5 in Figure 1) for generating first optical addressing signals associated with said optical data signals by converting signals identifying a destination address into corresponding optical addressing signals; means (reference numeral 5 in Figure 1) for transmitting said optical addressing signals from said routing apparatus to a second router (reference numeral 7 in Figure 1) over a first communication path (i.e. the path comprised of reference numerals 5, 6, 2, and 7 in Figure 1) comprising at least one optical fiber (i.e. the fiber between reference numeral 5 and 6 in Figure 1) for carrying said optical addressing signals separated from their associated optical data signals; each of said routing apparatus and said second router having routing capabilities (i.e. elements 6 and 7 route signals to and from the fibers of the system) and means (reference numeral 4 in Figure 1) for transmitting said optical data signals from said routing apparatus to

said second router (reference numeral 7 in Figure 1) along a second communication path (i.e. the path comprised of reference numerals 4, 6, 2, and 7 in Figure 1) comprising at least one optical fiber (i.e. the fiber between reference numeral 4 and 6 in Figure 1), said at least one optical fiber for carrying said optical data signals separated from their associated optical addressing signals and wherein said at least one optical fiber for carrying said optical data signals separated from their associated optical addressing signals is different from any of the at least one optical fibers comprised in said first communication path (i.e. the fiber between reference numeral 4 and 6 in Figure 1 is different from the fiber between reference numeral 5 and 6 in Figure 1), and wherein said optical data signals being conveyed separately from their associated optical addressing signals, were generated at a plurality of different network elements (i.e. the data signals generated at element 4 in Figure 1 where generated by a plurality of different elements, namely a light source and a modulator, each of which are part of the network and are thereby considered network elements; see column 2 lines 5-9), each of said plurality of different network elements having routing capabilities (i.e. the light source routes light towards the modulator and ultimately the fiber between elements 4 and 6, while the modulator within element 4 routes electrical data pulse input from an external data source to be modulated onto the light from the light source).

Regarding claim 82, Barnsley teaches an apparatus for transmitting optical data signals between at least two network elements (reference numeral 4 and 12 in Figure 1) in a system a) signal generating means (reference numeral 5 in Figure 1) for generating optical addressing signals associated with said optical data signals by converting signals identifying a destination address into corresponding optical addressing signals; b) transmission means (reference numeral 5 in Figure 1) for transmitting said optical addressing signals separated from their associated

optical data signals over a first communication path (i.e. the path comprised of reference numerals 5, 6, 2, and 7 in Figure 1) comprising one or more optical addressing fibers (i.e. the fiber between reference numeral 5 and 6 in Figure 1) and extending between the at least two network elements towards said destination address, each of said at least two network elements having routing capabilities (i.e. elements 4 routes optical data signals onto the fiber between elements 4 and 6, element 12 routes optical data signal onto the fiber between elements 12 and 13) ; and c) transmission means (reference numeral 8 in Figure 1) for transmitting said optical data signals towards said destination address (reference numeral 12 in Figure 1) along a second communication path (i.e. the path comprised of reference numerals 4, 6, 2, 7, 8, 13, and 12 in Figure 1) comprising at least one optical fiber extending between the at least two network elements for conveying said optical data signals separated from their associated optical addressing signals fiber (i.e. the fiber between reference numeral 4 and 6 in Figure 1), wherein at least one of said at least one optical fiber in said second communication path is different than any of the at least one optical fibers comprised in the second communication path (i.e. the fiber between reference numeral 4 and 6 in Figure 1 is different from the fiber between reference numeral 5 and 6 in Figure 1), and wherein said optical data signals being conveyed separately from their associated optical addressing signals, were generated at a plurality of different network elements (i.e. the fiber between reference numeral 4 and 6 in Figure 1 is different from the fiber between reference numeral 5 and 6 in Figure 1), and wherein said optical data signals being conveyed separately from said optical addressing signals, were generated at a plurality of different network elements (i.e. the data signals generated at element 4 in Figure 1 where generated by a plurality of different elements, namely a light source and a modulator, each of

which are part of the network and are thereby considered network elements; see column 2 lines 5-9), each of said plurality of different network elements having routing capabilities (i.e. the light source routes light towards the modulator and ultimately the fiber between elements 4 and 6, while the modulator within element 4 routes electrical data pulse input from an external data source to be modulated onto the light from the light source).

Regarding claim 83, Barnsley teaches the apparatus according to Claim 82, further comprising means (reference numeral 8 in Figure 1) for receiving an indication that said optical data signals can be forwarded towards their destination (reference numeral 12 in Figure 1), wherein said means for transmitting said optical data signals (reference numeral 8 in Figure 1) is adapted to transmit the optical data signals towards said destination responsive to receiving said indication (column 4 lines 24-29).

Regarding claim 86, Barnsley teaches a telecommunications routing apparatus (reference numeral 1 in Figure 1) comprising a) receiving means for receiving first optical addressing signals (reference numeral 8 in Figure 1) ; b) signal generation means for generating second optical addressing signals (reference numeral 21 in Figure 1) associated with the next section of a transmission path (reference numeral 3 in Figure 1) extending towards a destination address; c) transmission means (reference numeral 21 in Figure 1) for transmitting the second optical addressing signals separated (i.e. the separation of addressing and data signals clearly indicated by a branch between elements 20 and 21 in Figure 1) from associated optical data signals (reference numeral 20 in Figure 1) over one or more optical fibers (i.e. the fibers at the input and input of element 8 in Figure 1, the fibers connecting element 21 to element 8, the separation of addressing and data signals clearly indicated by a branch between elements 20 and 21, reference

numeral 3 in Figure 1) extending from said telecommunication routing apparatus towards the destination address representing a second network element, said telecommunications routing apparatus and said second network element each having routing capabilities (i.e. element 1 in Figure 1 has a plurality of routing capabilities, and a second network element downstream also has routing capabilities in that it routes a received signal to its destination); d) receiving means (reference numeral 8 in Figure 1) for receiving optical data signals generated at a plurality of different network elements each of said plurality of different routing elements having routing capabilities (i.e. the light source of element 4 routes light towards the modulator and ultimately the fiber between elements 4 and 6, while the modulator within element 4 routes electrical data pulse input from an external data source to be modulated onto the light from the light source).; and e) transmission means (reference numeral 8 in Figure 1) for transmitting the optical data signals received towards the destination address along an optical path (reference numeral 20, 9b, 8, 11a, 3 in Figure 1) extending from the telecommunication routing apparatus toward the second network element which comprises at least one optical fiber that is different from any one or more optical fibers over which the second optical addressing signals separated from their associated optical data signals are transmitted (i.e. the separation of addressing and data signals clearly indicated by a branch between elements 20 and 21 in Figure 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 48-52, 54, 59, 67-71, 73, and 84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnsley in view of Nir (U.S. Patent No. 6,160,652).

Regarding claim 48 and 67, Barnsley differs from the claimed invention in that it fails to specifically teach that information extracted from at least one of the optic addressing signals is transmitted at one of two binary illumination states. However, the transmission of binary information is very well known in the art. Furthermore, Nir, in the same field of optical communication, teaches the transmission of optical address signals in different binary illumination states (column 6 lines 23-65). One skilled in the art would have been motivated to employ a binary illumination scheme such as that taught by Nir in order to increase the number of available addresses. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to transmit optical address signals in different binary illumination states.

Regarding claim 49, Barnsley differs from the claimed invention in that it fails to specifically teach that at least one of the optical addressing signals is transmitted at a certain illumination level whereas at least one other optical addressing signal is presented by absence of illumination. However, as discussed regarding claim 48, Nir teaches the transmission of optical address signals in different binary illumination states and further teaches that the optical addressing signals is transmitted at a certain illumination level (e.g. "1" being high) whereas at least one other optical addressing signal is presented by absence of illumination (e.g. "0" being low) (column 6 lines 23-65). One skilled in the art would have been motivated to employ a binary illumination scheme such as that taught by Nir in order to increase the number of available addresses. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to transmit optical address signals in different binary illumination states.

Regarding claims 50-52 and 68-71, the combination of references obviates the ability to transmit the optical addressing signals either on the same wavelength, different wavelength, at the same intensity or different intensities (see addressing tables of Nir indicating different intensities and different wavelengths). Furthermore, the applicant's claim to a variety of combinations of wavelengths and intensities indicates that this feature is not critical to the invention at hand. Clearly, one skilled in the art would possess the ability to transmit optical signals at different intensities and wavelengths as desired. As such the combination of references obviates the claimed invention.

Regarding claims 54 and 73, Barnsley differs from the claimed invention in that it fails to specifically teach that the transmission of said at least one of the optical data signals is delayed by allowing said at least one of the optical data signals to pass through an optic fiber of a length corresponding to a desired delay in the transmission. However, Nir teaches this limitation (column 2 line 9 –14). One skilled in the art would have been motivated to employ a delay as taught by Nir in order to prevent loss of data bits (column 5 lines 14-17 of Barnsley). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to delay the transmission of a data signal via a delay fiber.

Regarding claims 59 and 84, Barnsley differs from the claimed invention in that Barnsley fails to specifically teach that at least one part of said first path extends in a network which uses at least one of the following protocols: MPLS, MPλS, IP, ATM and SS7. However, Nir teaches the IP protocol (column 1 lines 28-35). Furthermore, the protocols listed by the applicant are very well known in the art and well within the realm of knowledge of one skilled in the art. As such, one skilled in the art could have selected which protocol or combination of protocols would

be most effective in the system of Barnsley. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ different protocols as taught by Nir in the system of Barnsley.

(10) Response to Argument

In response to Appellant's argument that the examiner erred in not giving any weight to Appellant's declaration filed 04/27/09, the examiner notes that these declarations were considered but were not persuasive, and the final office action mailed 10/27/09 notes as much. Although Appellant's declaration did a fine job of reviewing the differences of opinion between Appellant and examiner, the declaration did nothing to introduce arguments that had not already been discussed *ad nauseum* and refuted. At the heart of the difference of opinion between Appellant and examiner is the broadest reasonable interpretation of the terms "network elements" and "routers." On one hand Appellant argues that the examiner's interpretation of these terms is far too broad and points to Appellant's specification to clearly define these terms, while on the other hand the examiner is bound by the broadest reasonable interpretation of those terms and notes that Appellant's specification fails to clearly define the bounds of these terms.

As the Board will surely appreciate, it has been judicially determined that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Although applicant argues that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "switching and forwarding capabilities") are not recited in the rejected claim(s). Furthermore, Appellant's

specification discloses that "***any***" other device having switching and forwarding capabilities" will encompass the term router and a network element having routing capabilities.

Given the above, the examiner asserts that the elements noted, i.e. elements 4, 6, 8, and 14 in Barnsley when given the broadest reasonable interpretation, have switching and forwarding capabilities and therefore meet Appellant's claimed network elements and routers. Specifically, a laser within element 4 switches on and switches electrical energy into optical energy. The laser then forwards that optical signal to a modulator where the light signal is modulated with data. This modulator switches the laser's optical signal between a high and low state according to the input data and forwards the data modulated light onto the fiber between element 6 and 4. Element 6 switches the data modulated optical signal from the input fiber the output fiber 2 and further switches in a continuous wave light output from element 5. Element 6 then forwards the combined data modulated light and the continuous wave light to fiber 2. Element 8 is clearly labeled as a switch and will switch signals from fiber 2 to either of fibers 11a or 11b while switching in additional signals from input 9b. Element 8 will further forward these signals to their desired destinations, i.e. fibers 11a or 11b. Element 14 will switch the combined data modulated signal and continuous wave signal from the input fiber to the output fiber so that only the continuous wave signal is forwarded to the controller port 16 of the optical switch.

The examiner further notes that each of the discussed elements are clearly network elements since they reside in, perform operations for, and are elements of the network. The examiner further reiterates that switching and forwarding are features which are not claimed by Appellant. Furthermore, the terms switching and forwarding are in themselves overly broad terms and, although they should not be read into the claim language, fail to distinguish the

claimed network elements with routing capabilities from those of Barnsley. Moreover, to claim that a network element has routing capabilities fails to distinguish the claimed invention from Barnsley because, as evidenced above, practically every element in an optical network has routing capabilities. In fact, routing light from one point to another is their sole reason for existing in an optical network.

Given this broad but reasonable interpretation of Barnsley, it is clear to see that at certain points in the path between network elements 4, 5, and 8 the data signal travels a path that is separate from its associated address signal. Specifically, this separation occurs twice, once between elements 4, 5, and the input to element 6, and again when the address signal is separated from the data signal by element 14. Therefore, Appellant's argument that Barnsley fails to teach transmitting data and control signals along different paths or that data and control signals must arrive together at the same node simply falls apart.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Agustin Bello/

Primary Examiner, Art Unit 2613

Conferees:

/Kenneth N Vanderpuye/

Supervisory Patent Examiner, Art Unit 2613

/Shi K. Li/

Primary Examiner, Art Unit 2613